

~~TOP SECRET TALENT~~WORKING PAPER

HTAUTOMAT Liaison Branch, Collection Division  
 Office of the Assistant Chief of Staff, Intelligence  
 August 1956

SUBJECT: Photo Intelligence Personnel Requirements

(Alay)

1. PROBLEM. To estimate the man-hour requirements for photo interpretation by HTAUTOMAT Liaison Branch, and to establish a basis for future planning, particularly in the employment of Army photo intelligence personnel assigned to HTAUTOMAT.

## 2. FACTS BEARING ON THE PROBLEM.

a. Continuity of Operations. At present, on the basis of available information, it is not possible to estimate the number of photographic missions which will be flown in the foreseeable future.

b. Cloud Cover. Plans for AQUATONE project include operational flights only when cloud cover over the route generally, and the principal target areas, is no worse than 2/3s. And yet, in the interests of operational urgency, the first mission flown, A-2003 (CZECHOSLOVAKIA and POLAND), was conducted in the face of 6/8s cloud cover, which limited the number of useable photographic prints and thus reduced the man-hour work-load of the photo interpreters at HTAUTOMAT. However, experience has shown that photos containing a high proportion of cloud cover are still of considerable value from which benefits can be derived from close study.

c. Equipment Malfunctions. The failure of equipment also plays a part in reducing the quantity of useable photographic prints. On Mission A-2013 (SOKOLSK-LENINGRAD-BALTIC STATES-POLAND), the flight oblique 24" camera failed to function, and thereby reduced the potential useable photos by 1,200.

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- d. Camera Configuration. The combination of cameras employed varies with different types of missions and has a direct bearing on the number of film exposures. (See Annex A for details of camera configuration.) This variance lies between 3,800 maximum exposures for the "A-1" configuration to 6,640 for the "C". All of the eight missions flown during the month of July were with "A-2" configuration, affording a maximum of 4,740 exposures. It is hoped soon to place major reliance upon the "B" configuration which features the 36" rocker camera and offers a maximum of 5,140 exposures, including the 3" tracker camera. Ultimately in the "C" configuration, the 180" camera and its attendant 3" tracker camera will produce a maximum of 6,640 exposures.
  - e. Complexity and Density of Targets. For each mission flown, target density will vary greatly, from dense urban areas to expansive wasteland, forests, or areas previously covered and perhaps reported in detail. Further variance will result from specific intelligence requirements.
3. DISCUSSION. The following types of photographic intelligence will be carried out by ~~HEATGEM~~ Liaison Branch:
- a. Tracking. Films resulting from linear coverage by the 3" tracking camera, one of which forms a basic unit in each configuration, are used, for the most part, in plotting the mission flight path. Under normal circumstances, these films will not be handled by photo interpreters of ~~HEATGEM~~ Liaison Branch, although in emergencies the negatives are available for study, and for use in preparing enlargements if other cameras in the configuration have malfunctioned. Estimated man-hours: None

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b. Scanning. Duplicate film-positives of the larger cameras for each mission will be scanned thoroughly by one photo interpreter, whose principal duty will consist in this operation. Purpose of the scanning is to make a general survey of the results of the mission, to pick out urgent items for Flash or Immediate Reports, and to select portions of the mission for study in preparing Mission Review Reports (Partial). For description of various photo intelligence reports see Annex B. Estimated man-hours 50.

c. Mission Review. Significant portions of each mission will be reviewed as soon as practicable after material is received from the field, and reports rendered thereon.

(1) Purposes of the Mission Review Report are:

- (a) To enable recipients to evaluate the contents of photo mission for its potential intelligence use, and to assist them in requisitioning detailed reports of the mission as their needs require.
- (b) To present limited information in a brief form, and to record routine coverage of installations which may later be utilized in detailed studies. Mission Review Reports are hastened at the expense of detail, since they do not represent complete exploitation of the intelligence capability of the mission, but are rather indices of them.
- (c) To provide a basis for planning future photographic missions.

(2) Whenever an urban area or dense target area is under study for a Mission Review Report, approximately one-half man-hour is devoted to each photograph. However, this amount of time can be reduced substantially for the study of photographs

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of expansive wasteland, forests, or areas previously covered. Under these categories it may be possible to review from 20 to 30 photographs per hour. Estimated man-hours for review of each mission: 700

- d. Summary Report. As may be required a Summary Report is prepared, presenting a consolidation of information which has been recorded fragmentarily in other types of photo intelligence reports. It treats with the status of individual activities, targets, groups of targets, or other subjects of a particular category or in a particular area during a specific period of time, and a single Summary Report will normally be based upon more than one mission. Estimated man-hours <sup>per mission</sup> for preparation of Summary Reports: 100.
- e. Detailed Report. Reports of detailed interpretation are prepared for all items of particular and specific interest on each mission. They represent the complete exploitation, information-wise, of selected prints. These reports may be descriptive in nature, to include the essential elements of a particular subject in textual and/or graphic form. They are normally confined to descriptions and measurements of installations and their more important components. Detailed Reports may also be analytic in nature, representing intensive studies of the more technical aspects of the subject. Experience has shown that approximately 50 man-hours are required to prepare a detailed report on an average target, to include research by the photo interpreter, scale lining, measurement of objects, photo interpretation, preparation of graphics, writing and editing. This figure may vary from four man-hours (a bridge or small power plant) to 100 man-hours (a chemical plant), depending upon complexity of target and specific detailed intelligence requirements. One Detailed Report on missile launching sites in a specific area required 500 man-hours. The

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magnitude of this operation may be appreciated when it is realized that a single photograph of a dense urban area may contain a dozen or more important military targets worthy of detailed reports. Of all the photos received from the first eight missions flown, targets of sufficient importance to justify detailed reports averaged one target for every three photos. This average may vary somewhat for later missions over more sparsely populated areas; and the number of detailed reports required will be less for future flights over areas previously covered. Careful studies of past experience, as related to requirements of the present project, lead to the conclusion that 200 detailed reports would be justified for the average mission. Assuming that each of these detailed reports requires the average man-hour expenditure of 50 hours, the total man-hour estimate for detailed reports per mission: 10,000.

- f. Special Reports. In the event the need arises for photographic intelligence which, because of an unusual subject or because of a particular requirement, cannot advantageously be presented by any of the foregoing reports, a Special Report is submitted. It may be presented either textually or graphically, or by a combination of the two. Material required for a special briefing may be in the form of a Special Report; typical examples: a study of a YO-YO installation, a new type of armored equipment, an unusual training area. A Special Report will require from four to 100 man-hours of preparation; estimated man-hours per mission: 200.

4 CONCLUSIONS.

- e. On the basis of the foregoing discussion it is concluded that man-hour requirements for the complete exploitation, information-wise,

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of a single AQUATONE photographic mission will aggregate:

<u>Operation</u>	<u>Man-Hours</u>
Scanning	50
Mission Review	700
Summary Reports	100
Detailed Reports	10,000
Special Reports	200
Total	11,050

b. Regardless of any missions which may be flown in the future, it can thus be seen that the eight missions conducted during the month of July, 1956, require the expenditure of 88,700 man-hours or 44.2 man-years for their complete exploitation.

Future missions, of course, will increase the man-hour requirement proportionately. Thus it is concluded that the four-man staff of photo interpreters presently assigned to HTAUTOMAT Liaison Branch <sup>could</sup> be employed profitably on this project for at least 11 years.

c. Obviously, personnel shortages during the immediate future will preclude maximum exploitation of AQUATONE photography, and thus the photographic interpretation will have to be carried out on a highly selective basis. However, when it is considered that this project represents in both human energy and expenditure of funds one of the greatest single intelligence efforts on the part of the United States against its strongest potential enemy, it may be argued that the greatest possible exploitation is justified and demanded. AQUATONE might be termed the MANHATTAN project of the intelligence field; it represents, perhaps, the greatest success of US Intelligence since the breaking of the Japanese codes.

5 ACTION RECOMMENDED.

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